

Worksheet 7, Tuesday, March 6th, 2018

Compute each of the following integrals:

1. $\int \sqrt{2x+7} \, dx$

2. $\int \sec^2(3x) \, dx$

3. $\int \frac{1}{x^2 \sqrt{9 + \frac{1}{x}}} \, dx$

4. $\int \frac{x}{(3x^2 - 8)^2} \, dx$

5. $\int (\cos x) \sin^6 x \, dx$

6. $\int \frac{\sin x}{\cos^5 x} \, dx$

7. $\int \sec^2 x \tan^3 x \, dx$

8. $\int \frac{\cos x}{(2 + \sin x)^{\frac{5}{7}}} \, dx$

9. $\int_1^4 \frac{1}{\sqrt{x}(1 + \sqrt{x})^3} \, dx$ Note: Definite integral for u -substitution. **Change your limits.**

10. $\int \frac{\tan \sqrt{x} \sec^2 \sqrt{x}}{\sqrt{x}} \, dx$

11. Find a function $f(x)$ that satisfies $f'(x) = x^2 \sin(x^3)$ and $f(0) = 3$

12. Consider an object travelling with velocity given by $v(t) = t^2 - 3t + 2$ feet per second.

(a) Graph $v(t)$.(b) Graph $|v(t)|$.(c) Write out the definition of $|v(t)|$.(d) Compute the **Displacement** for this object from time $t = 0$ to $t = 3$.(e) Compute the **Total Distance** for this object from time $t = 0$ to $t = 3$.**Turn in your own solutions.**